

Remarks

Drawings

The drawings were objected to under 37 C.F.R. 1.83(a) as not showing every feature of the invention specified in the claims. Claim limitations related to a rack, rack-and-pinion, hydraulic pump, steel helical spring, electronic control unit, compression-spring element, piston/cylinder device, and energy accumulator have been removed from the claims. Specifically, claims 14-21 and 31-33 have been cancelled to eliminate reference to features not shown in the drawings. Accordingly, Applicants believe that the drawings are now in compliance with 37 C.F.R. 1.83(a).

Rejection Under 35 U.S.C. § 112

Claims 1-33 were rejected as being indefinite. The term “clamshell-type” has been deleted from claim 1. The phrase “in particular” has been deleted from claims 1, 5, 10, 11, and 30. The term “element” has been deleted from claim 5. The lack of antecedent basis for the phrase “the tension element” has been rendered moot by deletion of this phrase in claim 12. The associated rejections to claims 14, 19 and 25 have been rendered moot by the cancellation of these claims. In addition, all reference numerals have been removed from the claims. Accordingly, Applicants believe these claims are now in condition for allowance.

Rejection Under 35 U.S.C. § 102

Claims 1 and 3 were rejected under § 102 (e) as being anticipated by U.S. Patent No. 6,079,776 to Breitner et al. Claim 1 has been amended to more distinctly claim the present invention. Specifically, claim 1 has been amended to recite a spreading-lever device arranged between the front part and the rear part for pivoting the front part with respect to the rear part. Because Breitner et al. ‘776 does not disclose a spreading lever device, Applicants believe that claim 1 as amended is in condition for allowance. Since claim 3 depends on claim 1, claim 3 is believed to be allowable for same reasons.

Claims 1-5, 9, 22, and 31 were rejected under § 102 (b) as being anticipated by U.S. Patent No. 5,842,738 to Knoll et al. As noted above, claim 1 has been amended to recite a spreading-lever device arranged between the front part and the rear part for pivoting the front

part with respect to the rear part. Because Knoll et al. '738 does not disclose a spreading-lever device, Applicants believe that claim 1 as amended is allowable. Since claims 2-5, 9, and 22 depend on claim 1, these claims are believed to be allowable for the same reasons. Claim 31 was cancelled in response to the objection to the drawings as mentioned above.

Conclusion

Applicants have made a genuine effort to fully respond to the rejection and advance the prosecution of this case. Applicants believe that all formal and substantive requirements for patentability have been met and that this case is in condition for allowance. Notice to that effect is respectfully requested. If any additional issues need to be resolved, the Examiner is invited to contact the undersigned at his earliest convenience.

Respectfully submitted,

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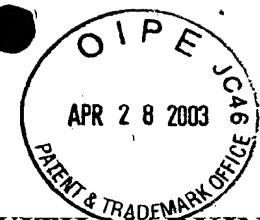
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In The Specification

Paragraph starting at page 3, line 1

The invention includes the basic concept of providing a two-part head restraint which as such is known and has a pivotable front part with a suitable driving device for pivoting it forwards in the event of a vehicle impact, and of equipping a vehicle seat with this combined arrangement. Furthermore, the invention includes the concept of realizing a non-manual adjustment of the inclination in an expedient manner on the basis of the two-part head restraint construction. A head restraint of this type is suitable for equipping with a motor-powered or hydraulic driving device, particularly since the rigid head restraint rear part conveniently provides a supporting surface not only for the actual adjustment, but also when the head restraint front part (and therefore the driver) is subjected to great momentum as a consequence of a vehicle impact.

Paragraph starting at page 12, line 8

When the electric motor is activated via a corresponding control signal ("head restraint forwards" or "head restraint rearwards"), the reel 21a is rotated in one of the two rotational directions [symbolized by the arrow,] and the inner wire of the Bowden cable 19 is tightened or relaxed, whereupon the head restraint front part 13 is moved forwards or backwards with respect to the head restraint rear part 9 as symbolized by the arrow via the spreading-lever arrangement 17 in interaction with the spring element 18. In a manner which is similar in principle, the driving force applied during a release in the event of a crash is transmitted to the head restraint front part, but in this case the transmission of force takes place very rapidly, and the spreading-lever arrangement is stretched until it reaches the position beyond the dead center, which is illustrated by dashed lines in Figure 1.

In The Claims

1. (Amended) A vehicle seat [(1; 100; 200), in particular] for a passenger car, comprising:

a backrest; [(3; 103; 203) and]

a head restraint [(7; 105; 205) which is] arranged on [the] an upper end of the backrest, [said] the head restraint [having a generally clamshell-type shape] including a [head restraint] rear part [(9; 105A; 205A)] mounted [essentially rigidly in] to the backrest and a [head restraint] front part pivotally connected to [an upper end of] the rear part [about an essentially horizontal rotational axis (15; 105B; 205B)]; [and]

a spreading-lever device arranged between the front part and the rear part for pivoting the front part with respect to the rear part; and

at least one driving device that actuates the spreading-lever device [(17; 19; 21; 107; 207) for pivoting the head restraint front part about the rotational axis] in response to at least one control signal [operative to actuate such pivoting].

2. (Amended) The [V]ehicle seat according to claim 1[,] wherein [said] the at least one control signal is indicative of a vehicle impact.

3. (Amended) The [V]ehicle seat according to claim 1[,] wherein [said] the at least one control signal is indicative of a desired inclination of the head restraint [for the purpose of adjusting the inclination].

4. (Amended) The [V]ehicle seat according to claim 1[,] wherein [said] the at least one control signal comprises a first control signal indicating a vehicle impact, [said] the first control signal being operative to pivot the [head restraint] front part forward about [the] a rotational axis by a large angular amount, and a second control signal indicating a desired inclination of the head restraint [for the purpose of adjusting the inclination], [said] the second control signal being operative to pivot the [head restraint] front part [by settable angular amounts] to a position selected by an occupant.

5. (Amended) The [V]ehicle seat according to claim 1 [4, wherein the driving device comprises] further comprising a cable that connects the at least one driving device to the spreading-lever device [an element, in particular a Bowden cable device (19; 115), which acts at least indirectly upon the head restraint front part, as a force-transmitting element].

6. (Amended) The [V]ehicle seat according to claim 1 [4], wherein the at least one driving device comprises an electric motor [(21) as a first driving element for adjusting the inclination].

7. (Amended) The [V]ehicle seat according to claim 6, wherein the electric motor [also brings about the pivoting] pivots the front part forward[s] in the event of a vehicle impact.

9. (Amended) The [V]ehicle seat according to claim 4[,] wherein the first control signal is provided by [further comprising] a mechanical actuator [(113; 213) or signal transmitter for the first control signal, which] that detects [the] an acceleration imparted during a [in the] vehicle impact to the vehicle occupant and converts [it] the acceleration into a driving force for [the driving device for the] pivoting the front portion [forwards of the head restraint in the event of the vehicle impact].

10. (Amended) The [V]ehicle seat according to claim 5 further comprising a spring element that biases the front part of the [, wherein the force-transmitting element (19) acts on a] spreading-lever device [(17), which is arranged between the head restraint rear part (9) and the head restraint front part (13) and, in particular, is spring-loaded, in such a manner that the transmission of a tensile force causes the head restraint front part to spread] away from the [head restraint] rear part [about the rotational axis (15)].

11. (Amended) The [V]ehicle seat according to claim 1[0,] wherein the spreading-lever device is configured to be moved to a locked position during a vehicle impact

[(17) has an arresting device for arresting it in the spread-out position, in particular in a position beyond the dead center].

12. (Amended) The [V]ehicle seat according to claim 5[,] wherein the cable is connected to [tension element (19) has a connecting or branching point (20) on which firstly] a first driving element [engages] for adjusting [the] inclination of the front part, and a second[ly a] driving element for pivoting the head restraint forward[s in the event of] during a vehicle impact [engages].

23. (Amended) The [V]ehicle seat according to claim 9[,] wherein the mechanical actuator [or control signal transmitter for the first control signal] has a compression plate [which is] arranged in the backrest that [and] can be moved [parallel to the direction of travel] with respect to an essentially rigid frame of the backrest [by a movement component].

24. (Amended) The [V]ehicle seat according claim 9[,] wherein the backrest has a backrest frame, and the mechanical actuator has a plurality of primary tension elements [(113; 213) which are each] fastened by at least one end to [a] the backrest frame [(109, 111; 209, 211)] and [are arranged in the displacement region of the vehicle occupant,] and a secondary[, elongated] tension element [(115; 215) which is] connected by at least one end to the backrest frame and at at least one point to the [head restraint] front part, [(105C; 205C) or to the associated driving device and in whose longitudinal profile] wherein the primary tension elements engage the secondary tension element in an [essentially] alternating manner from opposite sides in such a manner that when the primary tension elements are acted upon by a displacement of the vehicle occupant, the [said] secondary tension element is deformed in an essentially zigzag [or meandering] manner [and in the process drives the head restraint front part or controls the driving device thereof].

26. (Amended) The [V]ehicle seat according to claim 24[,] wherein the secondary tension element [(115)] is [designed as an essentially inextensible, markedly] a flexible wire [or an inextensible, flexible strip].

27. (Amended) The [V]ehicle seat according to claim 24[,] wherein the primary tension elements loop around [are formed by in each case at least one surface-type tension element which is arranged on the one side of] the secondary tension element and [grips around the latter at a plurality of points, or is] are fastened [thereto at a plurality of points, in particular are formed as an essentially inextensible lattice, braided or woven structure] at each end to the backrest frame.

28. (Amended) The [V]ehicle seat according to claim 24, wherein the primary tension elements [(113; 213)] are fastened in an alternating manner to [the] opposite sides [cheeks (111; 211)] of the backrest frame, and the secondary tension element [(115; 215)] is fastened to a transverse support [in a lower or upper end region of the backrest or to a transverse support] of the backrest frame [vehicle seat part].

29. (Amended) The [V]ehicle seat according to claim 24[,] wherein the primary tension elements [(113; 213)] and the secondary tension element [(115; 215)] are arranged behind a backrest upholstery of the vehicle seat.

30. (Amended) The [V]ehicle seat according to claim 24[,] wherein a portion of the primary tension elements [(113)] and the secondary tension element [(115)] are disposed in [fitted into a planar load-distributing element [(119), in particular] a load distributor plate [which covers over at least their connecting regions from the vehicle occupant].